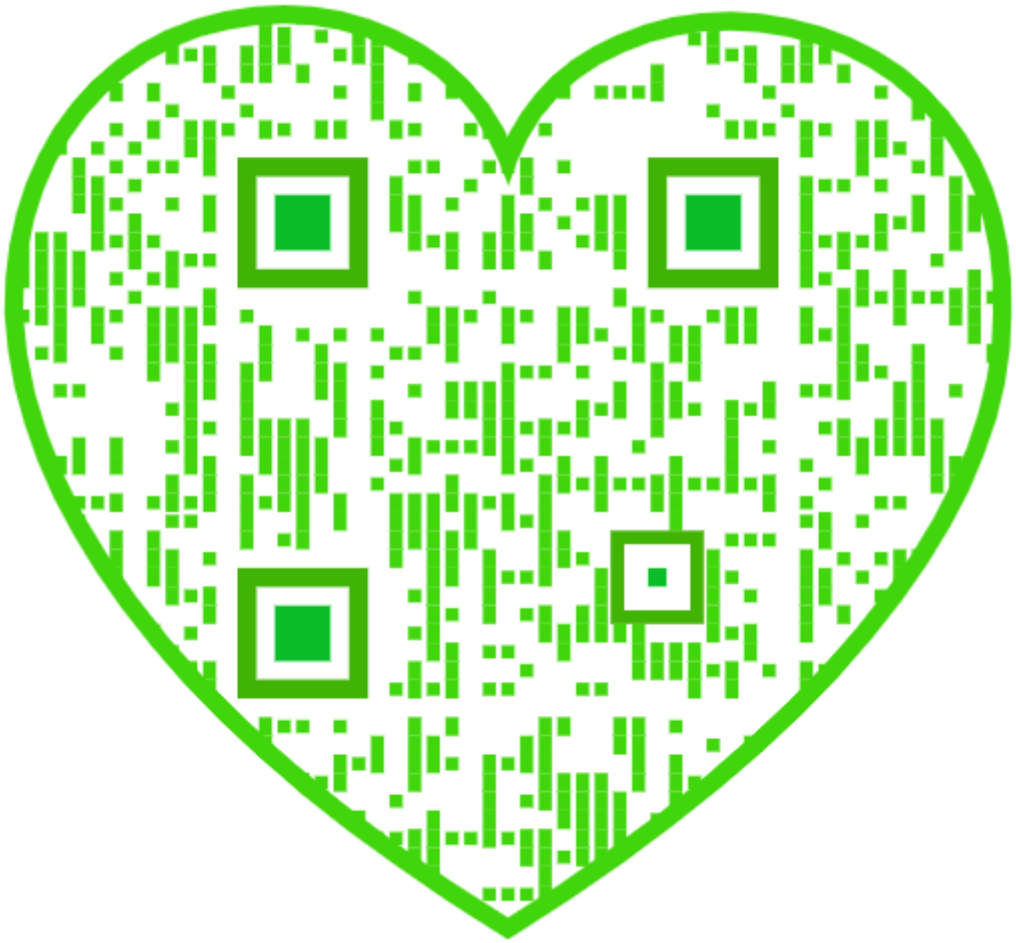
Master in Artificial Intelligence

Algorithm Selection & Development XVII



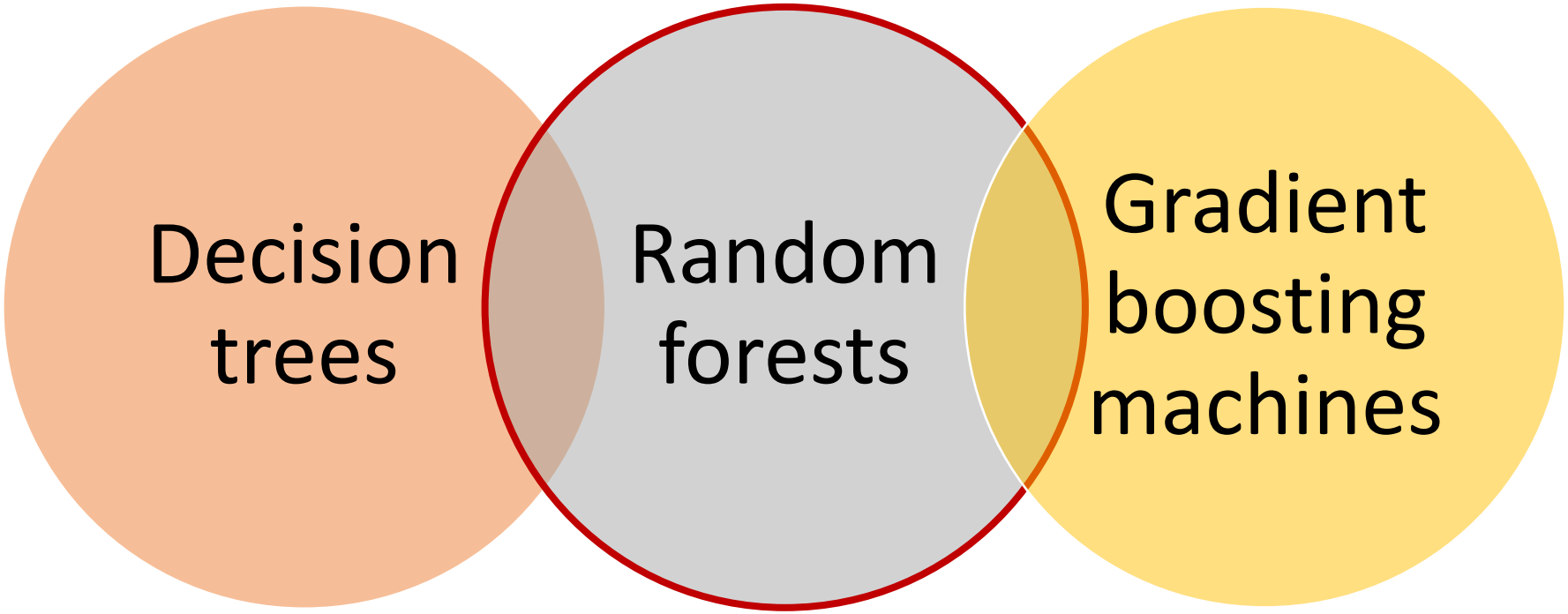
Purpose

The purpose of the section is to help you learn how to research, select, and develop appropriate algorithms to become a Successful Artificial Intelligence (AI) Engineer

At the end of this lecture, you will learn the following

- **How to train Random Forests algorithm for getting feature importance**

How to train Random Forests algorithm for getting feature importance



Import Libraries:

```python
from sklearn.datasets import load_iris  # Sample dataset
from sklearn.ensemble import RandomForestClassifier
```


Load Dataset:

python

```
# Load sample dataset (you can replace it with your own dataset)
data = load_iris()
X = data.data  # Features
y = data.target  # Target variable
```


How to train Random Forests algorithm for getting feature importance

Train Random Forest Model:

```
# Initialize Random Forest classifier
rf_clf = RandomForestClassifier(n_estimators=100)  # You can adjust the number of trees in the forest as needed

# Fit the model
rf_clf.fit(X, y)
```

How to train Random Forests algorithm for getting feature importance

Get Feature Importance Scores:

python

```python
# Extract feature importances
feature_importances = rf_clf.feature_importances_

# Print or visualize feature importances
for i, importance in enumerate(feature_importances):
    print(f"Feature {i}: {importance}")
```

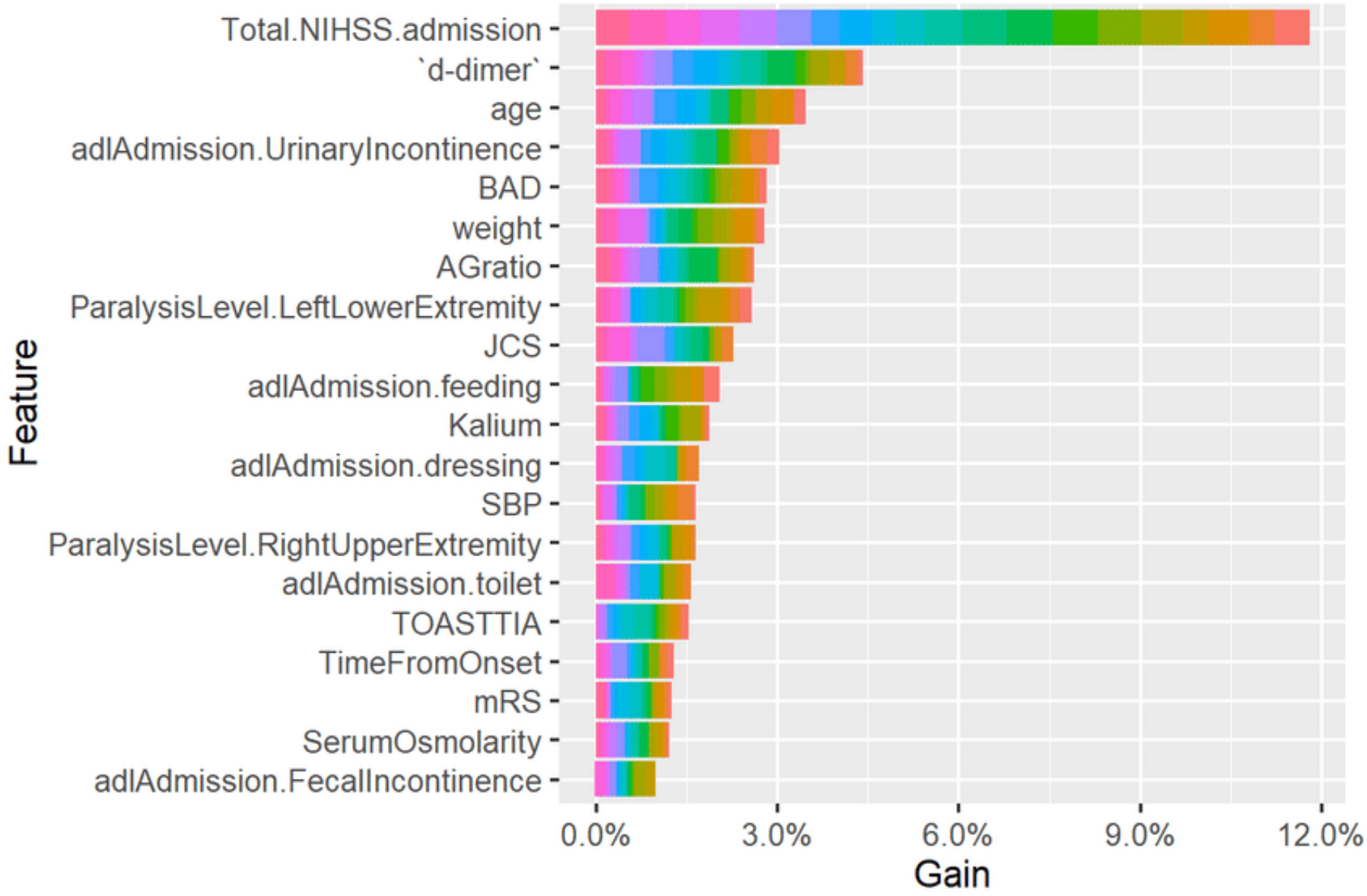
How to train Random Forests algorithm for getting feature importance

Optional: Visualize Feature Importance:

python

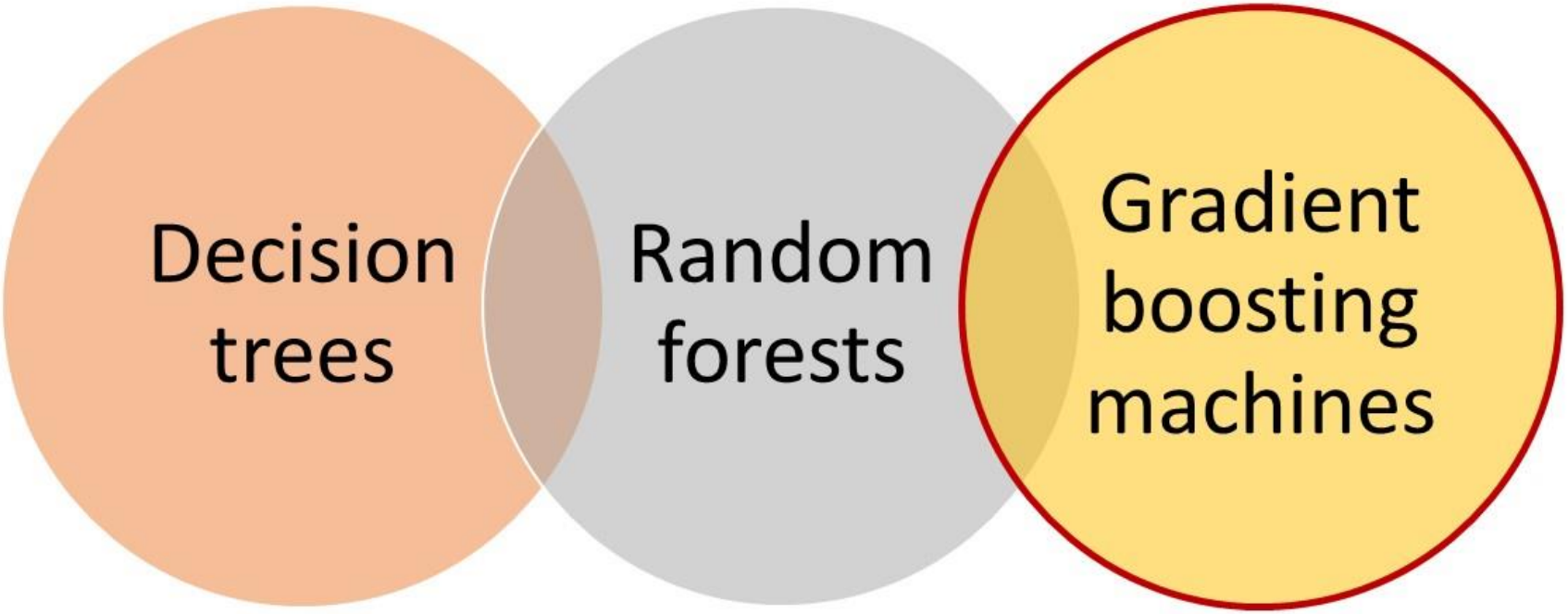
```python
import matplotlib.pyplot as plt

# Plot feature importances
plt.bar(range(len(feature_importances)), feature_importances)
plt.xlabel('Feature Index')
plt.ylabel('Feature Importance')
plt.title('Random Forest Feature Importance')
plt.show()
```

How to train Random Forests algorithm for getting feature importance



What is next?

How to train Gradient boosting machines algorithm for getting feature importance



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